

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Daewoong Suh	Examiner:	Jonathan Johnson
Serial No.:	10/808,192	Group Art Unit:	1725
Filed:	March 24, 2004	Docket:	884.C25US1
Title:	SOLDERING AN ELECTRONICS PACKAGE TO A MOTHERBOARD		

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

The applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request. This request is being filed with a Notice of Appeal. The review is requested for the reason(s) stated below:

Claims 1-7 and 9 were rejected under 35 USC § 103(a) as being unpatentable over Roman (The International Society for Hybrid Microelectronics (ISHM) Symposium Proceedings, October 1992, (October 1992), 1-6) in view of Reyes (U.S. 6,762,495). Applicant respectfully traverses the rejection because there is no objective evidence to combine Roman and Reyes. Applicant respectfully submits that the rejection fails to establish a legally sufficient motivation to combine the references.

Applicant initially notes that an obviousness analysis under § 103 is objective. A typical analysis determines the scope and content of the prior art, the differences between the prior art and the claims at issue, and the level of ordinary skill in the pertinent art. It is against this background that the obviousness or nonobviousness of the subject matter is determined.

Other considerations such as commercial success, long felt but unsolved need, and the failure of others might be utilized to shed light on the circumstances surrounding the origin of the subject matter sought to be patented.¹ While the obviousness analysis need not seek out precise teachings directed to the specific subject matter of a claim, the analysis should nevertheless be explicit, including some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness, and not based on mere conclusory statements.² An indication of a teaching, suggestion, or motivation in the prior art may be part of this analysis, since there is

¹ *KSR International Co. v. Teleflex Inc.*, 550 U.S. ____ , p. 2 slip opinion (2007), citing *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 15-17 (1966).

² *Id.*, p.14, citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

no necessary inconsistency between the idea underlying the teaching, suggestion, and motivation test and the *Graham* analysis. However, the general principle of the teaching, suggestion, and motivation test should not be transformed into a rigid rule that limits the obviousness inquiry.³ Rather, the approach to the determination of obviousness or nonobviousness should remain expansive and flexible.⁴

In addition, while there is a need for caution in granting a patent based on a combination of elements found in the prior art,⁵ a patent composed of several elements is not proved obvious merely by showing that each of its elements was, independently, known in the prior art. Therefore, it can be important to identify a reason that would have prompted a person of ordinary skill in the art in the relevant field to combine the elements in the way the claimed new invention does.⁶

Often, it will be necessary . . . to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements. . . . To facilitate review, this analysis should be made explicit. *KSR Int'l Co. V. Teleflex, Inc., No 04-1350 (U.S. Apr. 30, 2007)* (see *KSR slip op. at 14*).

These statements in *KSR* appear to reinforce the statements made in *In re Sang Su Lee*, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002) which indicate that the Office Action must further provide specific, objective evidence of record for finding a reason to combine reference teachings and must explain the reasoning by which the evidence is deemed to support such a finding.

The Office Action states at page 3 that “it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Roman’s process to utilize on a motherboard bonded to a die bonded to a substrate in order to ensure connectivity in an array package (see Reyes col. 1, ll. 10-50).” Applicant respectfully traverses this assertion.

³ *Id.*, p. 15.

⁴ *Id.*, p. 11.

⁵ *Id.*, p.11.

⁶ *Id.*, pp. 14-15.

Applicant respectfully submits that the Examiner's statement regarding motivation is analogous to the inadequate conclusory statements that are quoted immediately below which were made by the Examiner and Board in the *In re Sang Su Lee* case.

"With respect to Lee's application, neither the examiner nor the Board adequately supported the selection and combination of the Nortrup and Thunderchopper references to render obvious that which Lee described. The examiner's conclusory statements that 'the demonstration mode is just a programmable feature which can be used in many different devices for providing automatic introduction by adding the proper programming software' and that 'another motivation would be that the automatic demonstration mode is user friendly and it functions as tutorial' do not adequately address the issue of motivation to combine. This factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority. It is improper, in determining whether a person of ordinary skill in the art would have been lead to this combination of references, simply to use '[use] that which the inventor taught against its teacher.' *W.L. Gore V. Garlock, Inc.*, 721 F. 2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983)." *Lee*, at 1343, 1344.

Applicant notes that Roman does not appear to describe bonding a first contact that is on a motherboard to a second contact that is on an electronic package where the electronic package includes a die mounted on a substrate. Applicant also notes that Examiner agrees with this assertion at Page 2 of the Advisory Action. Applicant further notes that Roman only describes die attachment procedures instead of bonding an electronic package that includes a die to a motherboard.

In addition, Applicant notes that Reyes does not appear to describe an interlayer much less diffusing an interlayer into adjoined contacts. Applicant also notes that Examiner agrees with this assertion at Page 2 of the Advisory Action. Applicant has reviewed the portions of Reyes cited by the Examiner and can not find any description as to melting an interlayer to diffuse the interlayer into the first and second contacts such that the bonded first and second contacts have a higher melting temperature than the interlayer before melting.

Applicant respectfully submits that the only objective evidence as to "engaging a first contact on a motherboard with a second contact on an electronic package that includes a die bonded to a substrate, a portion of one of the first and second contacts being covered with an interlayer that has a lower melting temperature than the first and second contacts" in combination with "bonding the first contact to the second contact by melting the interlayer to diffuse the

interlayer into the first and second contacts, the bonded first and second contacts having a higher melting temperature than the interlayer before melting” as recited in claim 1 is found in Applicant’s disclosure.

Reconsideration and allowance of claims 1-7 and 9 are respectfully requested.

CONCLUSION

The applicant respectfully submits that all of the pending claims are in condition for allowance, and such action is earnestly solicited. The Examiner is invited to telephone the below-signed attorney at (262) 646-7009 to discuss any questions which may remain with respect to the present application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

DAEWOONG SUH

By his Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(262) 646-7009

By / Andrew Peret /
Andrew R. Peret
Reg. No. 41,246